

# **NOx Emissions Trading Markets – Understanding How to Use Them In Your Strategic Planning**

By

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## **Summary**

Allowance trading is intended to provide a mechanism for facility owners to comply with emissions regulations at the lowest overall cost. In this respect, trading has been very effective. From the perspective of both SO<sub>2</sub> controls (the Acid Rain Program) and NOx controls (the Ozone Transport Region trading program), facility owners have actively participated in these programs to their benefit.

Trading is facilitated in highly liquid markets that are characterized by:

- Low transaction costs
- All market participants have good access to information
- A large number of participants – so that no one participant can significantly affect market pricing
- Confidence in the delivery of the good being traded.

Therefore, trading of any item is facilitated by standardization of contracts, so that participants can reliably know what it is they are buying or selling (what they will receive or give). It also reduces the transaction costs because terms do not need to be negotiated for each contract. Although trading of allowance credits is not performed on an exchange in the same manner as commodities futures or stock futures, participants have worked to develop more or less standardized contracts.

Trading is enhanced in liquid markets where there are a large number of market participants with equal access to information, so that no one group of market participants can significantly affect market pricing. Liquidity, therefore, helps to improve the market signaling characteristics of prices and also helps improve trading. In a highly liquid market, prices are a good reflection of the consensus view of market participants, incorporating all of the information available to the market. Therefore, prices are somewhat predictable. This is not to say that the consensus view is always correct (i.e., when the NASDAQ was above 5000) or is not likely to change. In a highly liquid market, participants have comfort that pricing is fair and consistent with the information available to the market.

The allowance markets are certainly less liquid than the financial markets because there are fewer participants. So, a single participant may have a significant impact on pricing. And, some allowance markets are less liquid than others. For example, the NOx allowance market in the Houston Galveston Area has fewer participants and is, therefore, likely to be less liquid than the national SO<sub>2</sub> allowance market.

As a result, the allowance markets can be exceptionally volatile and unpredictable. High levels of volatility can inhibit trading, contributing to low transaction volume. This was demonstrated in the 1999 OTR allowance market.

For market participants who are capable of moving quickly to seize a market opportunity, price volatility can present opportunities for profit or for funding of environmental projects. For example, in 1999 Public Service Company of New Hampshire sold about 10,000 tons of NOx allowances to fund environmental upgrades at its fossil units. This was possible because the pricing of allowances did not reflect the cost to produce them for a significant period of time. Being able to seize such an opportunity, however, requires management that is capable of quickly assessing a pricing situation and acting on it.

It is likely that there will be some pricing volatility for NOx allowances in the SIP Call region in 2004, the first year of the NOx SIP Call Budget Rule, as buyers and sellers try to find the proper pricing level in the market. There may also be volatility in 2005 and 2006 as the 200,000-ton temporary allocation of extra allowances disappears. Therefore, market participants need to be prepared to operate in this environment.

Volatility in the market may be due to several factors. One factor could be quickly changing information and market outlook, such as a regulatory development. Another is a temporary, large, mismatch in the number of buyers and sellers. When the number of buyers significantly outnumbers the sellers, prices move up until more sellers enter the market to satisfy that demand. Alternatively, when the number of sellers significantly outnumbers the buyers, then prices drop until more buyers jump in or more sellers drop out to the point where demand and supply are better matched.

Pricing irregularities created by temporary imbalances in supply and demand are easy to identify. However, they tend to be very short term in nature because the pricing will motivate buyers and sellers to take action to balance supply and demand. Temporary supply/demand imbalances can be identified by comparing the price of allowances for different vintage years. Assuming the budget is the same for the years being reviewed, when supply and demand are balanced the current allowances should be somewhat more expensive than future contracts to allow for cost of money and to allow for some economic growth. If the cost of the current contract is significantly different from what this would predict (much higher or much lower), a temporary pricing irregularity driven by a supply/demand imbalance likely exists. And, such temporary pricing irregularities can be exploited for your company's benefit. An example will be shown during the presentation. Exploiting a temporary pricing irregularity is a challenge because timing is so critical.

Another way to identify opportunities, regardless of whether or not a temporary pricing irregularity exists, is to compare the market price of allowances to the cost for your company to generate them. If the incremental capital and operating cost to produce a stream of allowances is lower than the market price of that stream, it makes good sense to invest in the equipment to generate allowances and to become an allowance seller. This situation may exist because your company's facilities, for some reason, are capable of reducing NOx more easily than most others. That is to say that your company has an intrinsic economic advantage as an allowance generator. If this is the case, then timing may not be as critical.

Andover Technology Partners has developed a framework for analyzing opportunities in the allowance market. And this will be reviewed in the presentation.